WHAT IS CLAIMED IS:

1. A composition comprising a conjugate of a protein exhibiting binding specificity for an antigen domain for CD33 protein and a gelonin toxin selected from the group consisting of gelonin, recombinant gelonin and functionally active recombinant gelonin fragments.

2. The composition of claim 1, wherein said binding specificity is for an extracellular epitope of CD33.

3. The composition of claim 1, wherein said protein exhibiting binding specificity for an antigen domain for CD33 protein is a single chain antibody.

4. The composition of claim 1, wherein said protein exhibiting binding specificity for an antigen domain for CD33 protein is selected from the group consisting of murine monoclonal antibodies, humanized monoclonal antibodies and chimeric antibodies.

5. The composition of claim 1, wherein said conjugate is a fusion protein between said protein exhibiting binding specificity for an antigen domain for CD33 protein and a gelonin toxin selected from the group consisting of gelonin, recombinant gelonin and functionally active recombinant gelonin fragments.

6. The composition of claim 1 further comprising a pharmaceutically acceptable carrier.

7. A single dose composition of claim 6.

8. A method of treating a neoplastic cell comprising administering to said cell a therapeutically effective dose of the composition of claim 6.

9. The method of claim 8, wherein said cell is selected from the group consisting of acute and chronic myeloid leukemias, acute and chronic myelodysplastic syndromes, refractory anemias, lymphoid leukemias and undifferentiated leukemias.

10. The method of claim 8, wherein said composition retards the rate of growth of said cells.

11. The method of claim 8, wherein said neoplastic cell is in a human or non-human.

~~12. The method of claim 8, wherein said composition prevents recurrence of a neoplastic condition.~~

13. The method of claim 8, wherein said composition extends the survival time of a host of said neoplastic cell.

14. The method of claim 8, wherein said neoplastic cell is *in vitro*.

15. The method of claim 8, wherein said neoplastic cell is in bone marrow.

16. A method of killing tumor cells in bone marrow, wherein said tumor cells are characterized by expression of CD33 antigen protein, comprising the steps of:

removing bone marrow from an individual having a neoplastic disease;

contacting said bone marow with a cytocidally effective dose of the composition of claim 1; and

reinfusing the contacted marrow cells back into said individual.

17. The method of claim 16, wherein said bone marrow is frozen subsequent to said contact with said cytocidally effective dose and prior to said reinfusing.